Computer design encompasses the process of creating and conceptualizing computer systems, including hardware and software components, to meet specific functional requirements efficiently. It involves various stages such as architecture design, logic design, circuit design, and system integration.

Several key issues arise in computer design:
Performance Optimization: Balancing factors like speed, power consumption, and cost to achieve optimal performance.
Reliability and Fault Tolerance: Designing systems resilient to failures and errors, often through redundancy and error correction mechanisms.
Scalability: Ensuring that systems can accommodate increasing demands and workloads without significant redesign.
Security: Implementing measures to protect systems from unauthorized

access, data breaches, and other security threats.

Compatibility and Interoperability: Ensuring that components and systems can work together seamlessly, especially in heterogeneous environments.

Cost-effectiveness: Meeting performance requirements within budget constraints by making efficient design choices.

Ease of Maintenance and Upgradability: Designing systems that are easy to maintain, upgrade, and adapt to changing requirements over time.